CONTENTS

Preface vii

Committees viii

Contents ix

Opening lectures

Papers presented at the Conference, but not published in these Proceedings

Mitchell, I.V.
Community support for magnetic materials – past, present and future (*Invited*) A-01

Miedema, A.R.
Trends in magnetic materials (*Invited*) A-02

Chapter 1. Magneto-optics, recording, heads and memories

Kryder, M.H.
Advances in magneto-optical recording technology (*Tutorial*) 1

Hansen, P.
Magneto-optical recording materials and technologies (*Invited*) 6

Gerard, P., E. Lacroix, G. Marest, M. Dupuy, G. Rolland and B. Blanchard
Annealing effect on the properties of crystalline barium hexaferrite films 13

Šimša, Z.
Low temperature contributions of cobalt ions to the Faraday rotation of $Y_3Fe_5O_{12}$ films 15

Čermák, J., A. Abrahám, T. Fabián and Z. Šimša
Epitaxial garnet films for optical isolators 17

Carey, R., D.M. Newman and B.W.J. Thomas
Magneto-optic properties of hexagonal arrays of ferromagnetic cylinders 19

Carey, R., B.W.J. Thomas and G.S. Bains
Magnetic and magneto-optical characteristics of rf sputtered Mn_xSb_{1-x} films on substrates of glass, Mn and Sb 21

Pardavi-Horváth, M., L. Bottyán, I.S. Szücs, P.E. Wigen and M. Gomi
Mössbauer study of sputtered $Bi_3Fe_5O_{12}$ 23

Guillot, M., H. Le Gall, A. Marchand, J.M. Desvignes and M. Artinian
Contribution of the terbium ion to the Faraday rotation of terbium–yttrium ferrite garnets 25

Krishnan, R., A.K. Nigam and M. Tessier
Magnetic and magneto-optical properties of thin single and multilayer films of a-Tb–Gd–Fe/AlN 27

Brändle, H., J. Schoenes, F. Hulliger and W. Reim
Magneto-optical properties of UCo_5 29

Clegg, W.W., N.A.E. Heyes and C.D. Wright
Short wavelength recording studies in amorphous TbFeCo films for magneto-optic recording applications 32

Rio, F., J.C. Bouchand and D. Jeanniot
Optical and magnetic properties of GdTbFe oxides thin films 35

Challeton, D., B. Bechevet, B. Rolland and M.F. Armand
RF sputtering of Bi-substituted garnet films for magneto-optic memory 37

Tomlinson, S.L. and E.W. Hill
Modelling multiple MR elements for compound read heads 39

Ruigrok, J.J.M., C.W.M.P. Sillen and L.R.M. van Rijn
High-performance metal-in-gap heads with very small track widths 41

Sillen, C.W.M.P., J.J.M. Ruigrok, M.G.J. Vepřek-Heijman, A.J.G. Bode-Fassbender and J.B. Giesbers
High-performance small-track-width metal-in-gap heads made by reactive-ion etching 45

Ossart, F. and G. Meunier
Computation of the readback voltage in digital magnetic recording 48

Paper presented at the Conference, but not published in these Proceedings

Stankiewicz, A., A. Maziewski and A.M. Balbashov
Investigation of magnetic garnet properties for fiber optic switch AP2-16

Chapter 2. Magnetic thin films and surfaces

Li, C., A.J. Freeman and C.L. Fu
Electronic structure and magnetism of surfaces and interfaces: selected examples (*Invited*) 51

Reuvekamp, E.M.C.M., A.M. de Witte, W.A.M. Aarnink, G.J. Gerritsma, J.C. Lodder and H. Rogalla
Temperature dependent FMR on CoCr-layers 57

Reuvekamp, E.M.C.M., J.H.J. van Opheusden and G.J. Gerritsma
Computer simulation of a magnetic thin film of CoCr 59

Suran, G., M. Naili and F. Machizaud
Induced anisotropy of a-Co-metal thin films. Relationship between the magnitude and kinetics of K_u and the local atomic order 62

Krishnan, R., V. Cagan, M. Porte and M. Tessier
Magnetic studies of Co/Ag multilayers 65

Baczewski, L.T., M. Piecuch, J. Durand, G. Marchal and P. Delcroix
Magnetization in Tm–Fe multilayers 67

Ferrater, C., B. Martinez, F. Badia, R. Ribas, A. Lousa and J. Tejada
Magnetic properties of multilayer ferromagnetic thin films of Fe/La 69

Cura, H. and A. Lenhart
Microstructural study of sputtered CoCr-films and the effect of nucleation layers for perpendicular recording media 72

Alameda, J.M., M.C. Contreras, J.F. Fuertes, A. Liénard and F.H. Salas
Magnetic properties of amorphous NdFeB thin films 75

Nikitin, L.V. and O.M. Nakashidze
Magneto-optical properties of discontinuous cobalt films 77

Speliotis, D.E.
Coercive squareness and media noise in thin film magnetic recording media 79

Maziewski, A., M. Kisielewski, M. Tekielak and P. Görnert
Unusual magnetic domain structure properties in YIG + Co films 82

Vaterlaus, A., M. Aeschlimann, M. Lutz, M. Stampanoni and F. Meier
Magnetization reversal in a-GdTbFe investigated by time-resolved spin-polarized photoemission 85

Maziewski, A., L. Pûst and P. Görnert
Magnetometrical study of cobalt doped YIG garnet films 87

Niedoba, H., H.O. Gupta, L. Heyderman, I.B. Puchalska, A. Chambers, M.L. Watson and J.S.S. Whiting
Magnetic properties of double Permalloy films 89

Spörl, K., D. Weller and G. Rupp
Interface quality in ion beam sputtered multilayers: Au–Co and Tb–Fe 91

Suran, G., J. Sztern, F.W.A. Dirne and H.J. de Wit
Study by ferromagnetic resonance of Fe/CoNbZr multilayer structures 94

McVitie, S. and J.N. Chapman
Measurement of domain wall widths in Permalloy using differential phase contrast imaging in STEM 97

Maciejewski, W.
Interdiffusion effects in spin wave resonance spectra of layered structures 99

Kosiński, R.A.
On the effect of damping and in-plane magnetic field on the generation of vertical Bloch lines in the domain wall 101

Kalinikos, B.A. and P.A. Kolodin
Excitation of propagation spin waves in multilayered ferromagnetic film structures 103

Felici, R., D. Fiorani, J.L. Dormann, J. Penfold and R.C. Ward
Absolute static magnetization studies of Fe–Al_2O_3 granular films by polarized neutron reflection 106

Salas, F.H. and M. Mirabal-García
In situ butterfly susceptibility of Gd thin films 109

Miyazaki, T., T. Ajima and F. Sato
Magnetoresistance of 82Ni–Fe based alloy films 111

Freitas, P.P., A.A. Gomes, T.R. McGuire and T.S. Plaskett
Anisotropic magnetoresistance in Co films 113

Freitas, P.P., A.A. Gomes, M.M. Godinho and T.S. Plaskett
Magnetoresistance of Gd–Y multilayers 116

Smardz, L.
Magnetization of Cu/Co and Pd/Ni superlattices 119

Paper presented at the Conference, but not published in these Proceedings

Speriosu, V.S. and S.S. Parkin
Independent particles in exchange-coupled NiFe/FeMn films BP2-03

Chapter 3. Anisotropy and magnetostriction

Ibarra, M.R. and A. del Moral
Magnetostriction and magnetic anisotropy in rare earth intermetallic compounds (*Invited*) 121

Radwański, R.J., J.J.M. Franse and R. Verhoef
Magnetic interactions in 3d–4f compounds 127

Grössinger, R., R. Krewenka, X.C. Kou and K.H.J. Buschow
A comparison of the magnetic anisotropy of $R_2Fe_{14}B$ with $R_2Fe_{14}C$ compounds (R = Nd, Gd, Tb, Dy, Ho, Er, Tm, Lu) 130

Marusi, G., L. Pareti, M. Solzi, O. Moze, A. Paoluzi, M.R. Ibarra, J.I. Arnaudas, C. Marquina, P.A. Algarabel and A. del Moral
High pulsed magnetic field measurements of the magnetic anisotropy in $(Er_xNd_{1-x})_2Fe_{14}B$ 133

Moze, O., G. Marusi, M.R. Ibarra, M. Solzi and L. Pareti
Competing interactions in hexagonal $Pr_xNd_{1-x}Co_5$ pseudobinary intermetallic compounds 136

Verhoef, R., P.H. Quang, J.J.M. Franse and R.J. Radwański
The strength of the R–T exchange coupling in $R_2Fe_{14}B$ compounds 139

Radwański, R.J., R. Verhoef and J.J.M. Franse
Magnetocrystalline anisotropy of the $Pr_2Fe_{14}B$ compound 141

Zhong, X.P., R.J. Radwański, F.R. de Boer, R. Verhoef, T.H. Jacobs and K.H.J. Buschow
High-field study of $R_2Fe_{17}C$ compounds 143

Stefański, P., A. Kowalczyk and A. Wrzeciono
The spin reorientation phenomena in $RFe_{10}T_2$ (R = Tb, Dy, Ho, T = Cr, Si) 145

Kowalczyk, A., P. Stefański, A. Szlaferek and A. Wrzeciono
Spin phase diagrams and magnetic anisotropy in $Nd_2Fe_{14-x}M_xB$ compounds (M = Si, Cr and Cu) 147

Trung, K.N., H. Szymczak, A. Modrzejewski and M. Slepowronski
Magnetostriction and magnetization processes in highly anisotropic magnets 149

Kapusta, Cz., H. Figiel and Z. Kakol
Anisotropy of neodymium in $(Y_{1-x}Nd_x)_2Fe_{14}B$ compounds 151

Kapusta, Cz., N. Spiridis and H. Figiel
NMR and local anisotropy in YCo_4B 153

Drzazga, Z., A. Winiarska, K. Borgiel and T. Mydlarz
Magnetic anisotropy of $GdCo_{4-x}Fe_xB$ compounds 155

Cullen, J. and A. del Moral
Temperature dependence of magnetostriction in disordered ferromagnets 157

Del Moral, A., J.I. Arnaudas, M.R. Ibarra, P.A. Algarabel and J. Schweizer
Magnetic correlations in random anisotropy $Dy_xY_{1-x}Al_2$ magnets 160

Filippi, J., B. Barbara, B. Dieny and M. Maeder
Transverse ac susceptibility of the random anisotropy system a-DyNi 163

Del Moral, A. and J.R. Cullen
Magnons and approach to saturation in random anisotropy magnets 165

González, J., J.M. Blanco, I. Telleria, J.M. Barandiarán, M. Vázquez, A. Hernando and A.R. Pierna
Induced magnetic anisotropy in Co–Si–B amorphous alloys 168

Siemko, A., H.K. Lachowicz, N. Moser, A. Forkl and H. Kronmüller
Stress dependence of magnetostriction and domain structure in metallic glasses 171

Leccabue, F., F. Bolzoni, G. Bocelli, G. Calestani, A. Deriu, S.-q. Ji, J.-g. Zhao and J.L.Sanchez Ll.
Magnetic, Mössbauer and structural characterization of $RE_2Fe_{14}B$ (RE = Nd, Y, Tb, Gd) single crystals 174

Shirkoohi, G.H. and A.J. Moses
Effects of stress on magnetostrictive properties of low silicon non-oriented electrical steel 177

Squire, P.T., M.R.J. Gibbs and A.P. Thomas
Magnetostriction of obliquely annealed metallic glass 179

Szymański, K. and L. Dobrzyński
Some properties of partially ordered $Pt_3Mn_{0.9}Fe_{0.1}$ studied by Mössbauer spectroscopy 181

Papers presented at the Conference, but not published in these Proceedings

Kudrevatykh, N.V., M.I. Bartashecich, S.S. Sigaev and N. Tarasov
Magnetic moments and magnetocrystalline anisotropy of R- and T-ion subsystems in the tetragonal $R_2T_{14}B$ and $RT_{11}M$ intermetallic compounds (*Invited*) C-03

Bolzoni, F. and F. Pirini
The origin of first order magnetization processes in the canting model theory CP1-13

Lanotte, L., Z. Kaczkowski and C. Luponio
Influence of annealing time at about 400°C on the negative part of ΔE effect, magnetostriction and magnetic anisotropy of $Fe_{78}Si_8B_{14}$ metallic glasses CP1-20

Chapter 4. Coercivity, microstructure and reversal mechanisms

Givord, D., Q. Lu, M.F. Rossignol, P. Tenaud and T. Viadieu
Experimental approach to coercivity analysis in hard magnetic materials (*Invited*) 183

Wecker, J. and L. Schultz
Effect of Zr and Nb additions on the microstructure and the magnetic properties of melt spun Nd–Fe–B and Nd–Fe–Co–B 189

Blank, R.
Microscopic model for the demagnetization curve of nucleation type magnets $SmCo_5$ and $Nd_2Fe_{14}B$ 192

Müller, K.-H., D. Eckert, A. Handstein, P. Nothnagel and J. Schneider
Material structure and coercivity of sintered Nd–Fe–B type magnets 195

Eckert, D., K.-H. Müller, P. Nothnagel, J. Schneider and R. Szymczak
Magnetization curves of thermal, AC-field demagnetized NdFeB magnets 197

Handstein, A., J. Schneider, K.-H. Müller, R. Krewenka, R. Grössinger and H.R. Kirchmayr
Temperature dependence of magnetic properties of sintered Nd–Fe–B magnets modified with Dy 199

Fernengel, W.
Magnetic properties of sintered Nd–Y–Fe–B magnets 201

Bras, J., J. Degauque, M. Fagot and K. Biyadi
Magnetic domains in $Nd_2Fe_{14}B$ foils in a magnetic field 203

Rodewald, W. and P. Schrey
Microstructure and magnetic properties of sintered $Nd_{12.2}Dy_{2.9}Fe_{71.8-x}Co_{4.7}W_xB_{8.4}$ magnets 206

Knoch, K.G., E.-Th. Henig and J. Fidler
Correlation between Al addition and microstructural changes in Nd–Fe–B magnets 209

Leonowicz, M.
Magnetic properties and microstructure of $Nd_{16}Fe_{76-x}M_xB_8$ magnets (M = Ga, Cr, Nb, Bi, Sn, Zr, W, V, Mo, Mn) 211

Bertotti, G. and A. Montorsi
Dependence of Barkhausen noise on grain size in ferromagnetic materials 214

Guyot, M., T. Merceron and V. Cagan
Does the magnetostriction control the acoustic emission? 217

Schumacher, F., K.A. Hempel and W. Salz
Static magnetic properties and microwave absorption of $BaFe_{12}O_{19}$ at low temperature 219

Thompson, S.M. and B.K. Tanner
The magnetic properties of plastically deformed steels 221

Hefferman, S.J., J.N. Chapman and S. McVitie
In-situ magnetising experiments on small regular particles fabricated by electron beam lithography 223

Wysłocki, J.J. and B. Wysłocki
Magnetic domain structure and rotational hysteresis energy in alnico magnets with different crystallographic orientation of the sample surface 225

Papers presented at the Conference, but not published in these Proceedings

Blank, R.
Improvement of the surface on sintered $SmCo_5$ and $Nd_2Fe_{14}B$ magnets by annealing CP2-07

Půst, L., I. Tomas and G. Vertesy
Direct observation of the domain wall coercivity in thin garnet films CP2-14

Chapter 5. Permanent magnets and applications

Coehoorn, R. and C. de Waard
Preparation and magnetic properties of R–Fe–B permanent magnet materials containing Fe_3B as the main phase 228

Homburg, H., Th. Sinnemann, S. Methfessel, M. Rosenberg and B.X. Gu
Sputtered NdFeB-films of high coercivity 231

Lemaire, H., P. Tenaud, F. Vial and B. Labulle
Chemical segregation in small cast Nd–Fe–B ingots 234

Jurczyk, M.
The effect of Re substitution on magnetic properties of $R_2(Fe, Co)_{14}B$ alloys (R = Pr, Pr–Dy) 237

Wysłocki, J.J. and F. Bolzoni
Magnetic domain structure and domain-wall energy in $Y_2Fe_{13}MnB$ and $Y_2Fe_{11}Mn_3B$ compounds 239

Szewczyk, A., R. Szymczak, H. Szymczak, J. Zawadzki, D. Gignoux, B. Gorges and R. Lemaire
Temperature dependence of the domain wall energy in $SmNi_5$ crystals 241

Wójcik, W., E. Jędryka, P. Panissod and K.H.J. Buschow
^{59}Co NMR in ferromagnetic $R_2Co_{14}B$ with R = Y, Pr, Nd 243

Dracopoulos, D., P. Grimanis, A. Kostikas, D. Niarchos, V. Papaefthymiou, A. Simopoulos and A. Travlos
Phase constitution and coercivity of $Pr_2Fe_7B_3$ alloys produced by melt spinning 246

Cochet-Muchy, D. and S. Païdassi
Rapidly quenched hard magnetic alloys with $ThMn_{12}$ -type structure 249

Li, H.-S., B.-P. Hu, J.M.D. Coey, J.P. Gavigan, G. Marusi, L. Pareti, G. Czjzek and R. Kmiec
Large anisotropy fields in hexagonal $R_{2-x}T_{17+2x}$ 251

Schultz, L., K. Schnitzke and J. Wecker
Magnetic hardening of Sm–Fe–Mo, Sm–Fe–V and Sm–Fe–Ti magnets 254

Ding, J. and M. Rosenberg
Magnetic properties of melt spun and crystallized $SmFe_{10}M_2$ 257

Sinnemann, Th., M.-U. Wisniewski, M. Rosenberg and K.H.J. Buschow
Fe magnetic moments in $RFe_{10}Si_2$ studied with Mössbauer effect and spin echo NMR 259

Baran, A., M. Łukasiak, W. Suski, J. Suwalski, H. Figiel, J. Opiła, K. Turek and T. Mydlarz
Search for new magnetic materials based on uranium and iron 262

Wysłocki, J.J. and S. Szymura
Dependece of the anisotropic permanent magnet properties of Fe–Al–C (Cu) on the Cu concentration 265

Szymczak, R., J. Zawadzki and Z. Drzazga
Effect of spin-reorientation on the domain structure in $HoCo_3Ni_2$ 267

Asti, G., F. Bolzoni and L. Pareti
Easy-axis distribution function of permanent magnets 270

Yonnet, J.P. and A. Picard
Plasma confinement by a rotating magnet device 273

Abele, M.G.
Linear theory of yokeless permanent magnets 276

Turek, K. and J. Opiła
Magnetic fibers 279

Pan, A. and P. Pan
Technologies, machines and equipment for the finishing operations of the new high energy magnetic materials 281

Papers presented at the Conference, but not published in these Proceedings

Clavaguera-Mora, M.T., M.D. Baro, N. Clavaguera and S. Surinach
Thermal behaviour of some melt spun Fe–Nd–B alloys DP3-01

Popov, P., S. Nikolov, H. Sassik and M. Mikhov
Low-field thermomagnetic curves of melt-spun Nd–Fe–B ribbons DP3-03

Diaz, S., F. Leccabue, R. Panizzieri, J.L. Sanchez and N. Suarez
On the magnetic behaviour of DyFe(B,C) pseudo-ternary alloys DP3-09

Leccabue, F., R. Panizzieri, J.L. Sanchez and N. Suarez
Magnetic characterization of $SrFe_2$–W ferrite prepared by chemical coprecipitation method EP3-09

Ares, O., S. Garcia, F. Leccabue, R. Panizzieri, J.L. Sanchez and N. Suarez
Magnetic and Mössbauer study of RE substituted M-, W- and X-type hexagonal ferrites EP3-10

Calestani, G., A. Deriu, S. Maffi, F. Leccabue, L. Peraldo Bicelli and J.L. Sanchez
Electrochemical and magnetostructural aspects of lithium into $BaFe_{12}O_{19}$ ferrite EP3-11

Znidarsic, A., A. Zeleznikar and M. Limpel
The influence of ratio SrO/Fe_2O_3 on improvement of quality of magnetic properties of Sr hexaferrites EP3-12

Klodas, K. and T. Dymkowski
Structure and magnetic properties stability of titanium-containing alnico alloy EP3-13

Bertora, F. and G. Burdese
Magnetic resonance imaging and magnet technology EP3-15

Chapter 6. Magnetic transitions and magnetic structures

Del Moral, A., M.R. Ibarra, C. Marquina, J.I. Arnaudas and P.A. Algarabel
Critical behaviour in spin reorientation phase transitions $(Er_xRE_{1-x})_2Fe_{14}B$ (RE = Nd, Dy) magnets 283

Apostolov, A., L. Bozukov, N. Stanev and T. Mydlarz
A change in magnetic properties of R_2Co_7 intermetallic compounds (R = Pr, Sm, Tb and Ho) upon hydrogen absorption 286

Lazaro, F.J., J. Bartolomé, R. Navarro, C. Rillo, F. Lera, L.M. Garcia, J. Chaboy, C. Pique, R. Burriel, D. Fruchart and S. Miraglia
Thermal, electric and magnetic anomalies in the spin reorientation phase transitions of $RE_2Fe_{14}B$ 289

Fruchart, D., S. Miraglia, S. Obbade, P. Ezekwenna and P. l'Héritier
Hydrogenation, substitutions and spin reorientation in $R_2M_{14}B$ 291

Jacobs, T.H., M.W. Dirken, R.C. Thiel, L.J. de Jongh and K.H.J. Buschow
Magnetic properties of $Gd_2Fe_{17}C_x$ 293

Kobeissi, M.A., D.H. Jones, S. Suharan and M.F. Thomas
Magnetism of the alloy series $FeAl_{1-x}Cu_x$ ($0 \leqslant x \leqslant 0.4$) 295

Diviš, M., P. Svoboda, Z. Smetana, V. Šíma, J. Bischof, J. Stehno and A.V. Andreev
Magnetic phase transitions in $Tm(Cu_{1-x}Ni_x)_2$ 297

Cavallotti, P.L., L. Nobili, P.M. Ossi, B. Colombi and M. Colombo
A Thermodynamic approach for cooperative phenomena in magnetic materials 300

Chevalier, B., P. Rogl, J. Etourneau and M.J. Besnus
Valence of cerium and physical properties in ternary germanides CeMGe (M = Rh,Ir,Pd,Pt) and $Ce(Rh_{1-x}Ir_x)Ge$ 303

Klugmann, E. and H.J. Blythe
Magnetic relaxation in equi-atomic CoPt and FePd alloys during ordering 305

Lanotte, A. and P. Silvestrini
Initial and saturation magnetization of $Co_{1-x}P_x$ alloys at low temperature 307

Plumier, R. and M. Sougi
Magnetic properties of the normal spinel $Ag_{1/2}In_{1/2}Cr_2S_4$ 309

Plumier, R. and M. Sougi
Ferromagnetism in the oxygen spinel $LiZn_{0.5}Mn_{1.5}O_4$ 311

Bacmann, M., D. Fruchart, B. Chenevier, R. Fruchart, J.A. Puertolas and C. Rillo
Magnetic phase diagram of the $(Fe_{1-x}Mn_x)_2P$ system 313

Erdmann, K., M. Rosenberg and K.H.J. Buschow
Study of domain walls in $R_2Fe_{14}B$ with spin echo NMR of B nuclei 315

Chakravarthy, R., S.K. Paranjpe, L. Madhav Rao, S.K. Kulshreshtha and S.B. Roy
Magnetic structure of disordered $Zn_xCo_{1-x}FeCrO_4$ 318

Kuznietz, M., H. Pinto and M. Melamud
Magnetic phase diagram of the $U(Co_{1-x}Cu_x)_2Ge_2$ system 321

Hill, E.W., N.A.E. Heyes and J.K. Birtwistle
Observations of magnetisation distribution in narrow permalloy strips 323

Jaroszewicz, A., P. Kociński, G. Tęcza and J. Kociński
The nonlinear equations for the spin order in neodymium 326

Papers presented at the Conference, but not published in these Proceedings

Navarro, R., J. Bartolomé, C. Rillo, F. Lera, S. Obbade, S. Miraglia and D. Fruchart
Domain rotation and wall motions in $Ho_2Fe_{14}BH_x$ DP1-04

Moreira, J.M., J.B. Sousa, M.E. Braga, J.D. Montenegro, P.A. Algarabel, A. Del Moral and M.R. Ibarra
A detailed analysis of spin reorientation transitions in RCo_5 DP1-08

Christides, C., G. Zouganelis, D. Niarchos, A. Kostikas and A. Simopoulos
Study of spin reorientation transitions in $NdFe_{12-x}V_x$ compounds with magnetic measurements and Mössbauer spectroscopy DP1-21

Sadykov, R.A.
Magnetic structures and properties of hexaferrites $BaCo_xTi_xFe_{12-2x}O_{19}$ DP1-24

Dorman, V.L., V.L. Rapoport and V.L. Sobolev
New approach to the study of inhomogeneities distribution of magnetization DP1-30

Chapter 7. Amorphous magnetic materials

Gibbs, M.R.J.
Anisotropy and magnetostriction in amorphous alloys (*Invited*) 329

Barandiarán, J.M., M.L. Fernández-Gubieda, J. Gutierrez, F. Plazaola and O.V. Nielsen
Stress induced anisotropy and structural changes in $(Co-Fe)_{75}Si_{15}B_{10}$ amorphous ribbons 334

Kraus, L. and P. Duhaj
Effect of annealing on the stress and field dependence of magnetostriction constants of metallic glasses 337

Mitra, A., A. Hernando, G. Rivero and M. Vázquez
Susceptibility and coercivity of amorphous wires 339

Siratori, K., K. Nagayama, H. Ino, N. Saito and Y. Nakagawa
Magnetization of Fe–Nd amorphous alloys with random anisotropy 341

Ressler, L. and M. Rosenberg
Magnetic moments and magnetic transitions in the low iron concentration range of the amorphous $Fe_xNi_{80-x}P_{20}$ alloys 343

Allia, P., J. Fink-Finowicki and F. Vinai
An unusual field dependence of disaccomodation observed in ferromagnetic metallic glasses under stress 345

Allia, P., M. Baricco and F. Vinai
Effect of microcrystal development on the magnetic properties of heat-treated amorphous $Fe_{78}B_{13}Si_9$ 347

Aroca, C., M.C. Sanchez, I. Tanarro, E. Lopez and P. Sanchez
Domain structure of laser annealed amorphous ribbons 349

Grössinger, R., R. Wezulek and H. Sassik
The influence of the magnetostriction on the coercivity of amorphous ribbons 351

Chandra, G., S. Radha, A.K. Nigam, S. Prasad, S.N. Shringi and R. Krishnan
Electrical transport properties of vanadium substituted Fe–B–Si metallic glasses 354

Fernández-Barquín, L., J. Rodríguez-Fernández and J.C. Gómez-Sal
Magnetic contribution to the electrical resistivity in some Co based amorphous ribbons 357

Cziráki, Á., B. Fogarassy, I. Nagy, A. Lovas, E. Tóth-Kádár, M. Hossó and I. Bakonyi
Hydrogen-induced phase-separation in the amorphous Ni–Zr system 360

Kaczkowski, Z., H. Chiriac and I. Ciobotaru
Magnetomechanical coupling in $Fe_{40}Ni_{40}B_6P_{14}$ metallic glasses 363

Kaczkowski, Z. and L. Małkiński
Annealing effect on elasticity of the $Fe_{78}Si_8B_{14}$ metallic glass 365

Lupi, S. and M. Fernandes Nunes
25kHz amorphous core transformer for induction heating applications 367

Papers presented at the Conference, but not published in these Proceedings

Idzikowski, B. and A. Wrzeciono
Properties of $Tb_xCo_{70-x}B_{30}$ AP1-08

Apostolov, A. and L. Bozukov
Magnetic properties of amorphous TbCu alloy AP1-01

Lopez, E., C. Aroca, M.C. Sanchez and P. Sanchez
Stability and kinetics of induced helical anisotropies in amorphous ribbons AP1-03

Overshott, K.J. and J. Rabias
The effect of surface roughness on the power loss of amorphous ribbon materials AP1-15

Kaczowski, Z. and L. Lanotte
Heat treatment dependence of the magneto–mechanical coupling coefficient of the $Fe_{79}Si_{12}B_9$ metallic glasses AP1-24

Chapter 8. Soft magnetic materials and applications

Hilzinger, H.R.
Recent advances in rapidly solidified soft magnetic materials (*Invited*) 370

Tanaka, Y., Y. Takada, M. Abe and S. Masuda
Magnetic properties of 6.5% Si–Fe sheet and its applications 375

Bouchara, D., M. Fagot, J. Degauque and J. Bras
Ordering influence on magnetic properties of rapidly quenched Fe–6.5 wt% Si 377

Sheard, S.M., M.R.J. Gibbs, N. Seddon and R.K. Avery
Magnetostrictive metallic glasses in pulse compression applications 379

Bóc, I., Á. Cziráki, T. Gróf and J. Csébi
Analysis of inclusions in cold-rolled N.O. Si–Fe strips 381

Bán, G., L. Kőszegi and S.Sh. Shilstein
Domain structure investigations on FeNi alloys by means of complex permeability measurements and small angle neutron scattering 384

Bán, G.
Effect of the grain size and the impurity structure on the magnetic parameters through the domain structure behavior of FeNi alloys 387

Rusek, P.
Magnetoelastic excitations in antiferromagnetic spin glass 390

Szczygłowski, J.
Co- and Ni-based amorphous ribbons as magnetic screens of inductive units 393

Kalkanli, A., J.V. Wood and M.R.J. Gibbs
Production and assessment of direct cast soft magnetic alloy strips 395

Dirne, F.W.A., J.A.M. Tolboom, H.J. de Wit and C.H.M. Witmer
Soft magnetic multilayers: the role of the magnetostriction 399

Fiorillo, F. and A.M. Rietto
Rotational and alternating energy loss vs. magnetizing frequency in SiFe laminations 402

Nielsen, O.V., B. Hernando, J.R. Petersen and F. Primdahl
Miniaturisation of low-cost metallic glass flux-gate sensors 405

Buttino, G., A. Cecchetti, M. Poppi and G. Zini
Influence of the temperature on the aftereffect and structural instabilities in zeromagnetostrictive amorphous ribbons 407

Prodi, G.A., S. Vitale, M. Cerdonio and P. Falferi
Magnetization thermal noise in soft ferromagnets at liquid He temperatures 409

Bieńkowski, A.
The possibility of utilizing the magnetomechanical Villari effect in ferrite as stress transducer 411

Autissier, D.
Synthesis and orientation of barium hexaferrite ceramics by magnetic alignment 413

Abbruzzese, G., P. Marini, G. Songini, M. Candiotti, T. Gubiotti and R. Onori
Development of new classes of grain oriented silicon steel with improved magnetic properties for new electrical transformer generation 416

Papers presented at the Conference, but not published in these Proceedings

Overshott, K.J.
The competition between amorphous ribbon materials and grain -oriented 3% silicon–iron as a transformer core material EP1-04

Murakami, A., K. Hosaka, M. Fukushima and N. Tsuya
Continuous measurement of amorphous ribbon used for an electric whiteboard EP1-21

Aroca, C., M. Rodriguez and P. Sanchez
Apparatus for density measurements by using magnetic transducers and actuators EP1-22

Chapter 9. Microwave materials and applications

Adam, J.D., S.V. Krishnaswamy, S.H. Talisa and K.C. Yoo
Thin-film ferrites for microwave and millimeter-wave applications (*Invited*) 419

Pardavi-Horváth, M., P.E. Wigen and P. DeGasperis
Light-induced time-dependent electrical and magnetic effects in charge-uncompensated Ca^{2+} : YIG 425

Čermák, J., A. Abrahám, T. Fabián, P. Kaboš and P. Hyben
YIG based LPE films for microwave devices 427

Nedkov, I., A. Petkov and V. Cheparin
Microstructure and resonant properties of polycrystalline Sr -hexaferrite 430

Iliev, I., I. Nedkov and V. Hristova
Influence of scandium substitution on the properties of Mn–Mg microwave ferrites 433

Tsankov, M.A. and L.G. Milenova
Accurate design of partial-height ferrite resonators for waveguide circulators 435

Deschanvres, J.L., M. Langlet and J.C. Joubert
New spray pyrolysis deposition and magnetic properties of ferrite thin films for microwave applications 437

Papers presented at the Conference, but not published in these Proceedings

Luhrmann, B., M. Ye and H. Dotsch
Instability of the ferrimagnetic resonance in epitaxial garnets films EP2-05

Sramek, J.
Germanium substituted microwave garnets EP2-06

Chapter 10. Fine particles

Zimmels, Y.
Magnetic forces and magnetic diffusion in magnetizable dispersions 439

Coverdale, G.N., R.W. Chantrell and K. O'Grady
Calculation of the fluctuation field of a fine particle magnetic system 442

Jones, H.E., P.R. Bissell and R.W. Chantrell
The dependence of coercivity and remanence on dispersion concentration in fine particle systems 445

Mayo, P., A. Bradbury and R.W. Chantrell
Pair correlations in dispersions of strongly interacting tape particles 447

Bottoni, G., D. Candolfo, A. Cecchetti and F. Masoli
Magnetization reversal in Ir-doped CrO_2 particles 449

Aharoni, A. and J.P. Jakubovics
Approach to saturation in small isotropic spheres 451

Djega-Mariadassou, C., S. Sayouri, J.L. Dormann, G. Villers and D. Fiorani
Small particle susceptibility: validity of the volume determination and meaning of the superparamagnetic constant ϑ_{sp} 453

Speliotis, D.E.
Peak shift in particulate and thin film media 455

Linderoth, S., S. Mørup and M.D. Bentzon
Influence of pH on the composition and structure of Fe–Co–B alloy particles prepared by borohydride reduction in aqueous solutions 457

Dragieva, I., D. Mehandjiev, D. Buchkov and M. Slavcheva
Effect of single-domain particle size and chemical composition on the chain formation in magnetic metal powders 460

Nozar, P., L. Jirman and V. Sechovsky
On some magnetic properties of CuFe alloys 463

Papers presented at the Conference, but not published in these Proceedings

Colligiani, A., G. Vitulli, J. Kraus and P. Salvadori
Preliminary results on the magnetic behaviour of cobalt–ytterbium metal clusters via direct evaporation of the two metals on weakly stabilizing organic matrices BP3-12

Dormann, J.L., D. Fiorani, F. Giammaria and F. Lucari
Magnetization measurements by magneto-optical methods on films with Fe particles in Al_2O_3 amorphous matrix BP3-13

Chapter 11. Magnetic insulators and magnetic semiconductors

Battle, X., X. Obradors, M. Pernet, M. Vallet, M. Cabañas, J. Rodríguez and J. Fontcuberta
Cationic distribution, magnetization and magnetic anisotropy of Co^{2+} doped m-type barium ferrite 465

Martínez, D., J. Rivas, F. Walz, M. Gayoso, C. Rodríguez and M.A. Señarís
Influence of non-stoichiometry on magnetic relaxation in polycrystalline barium ferrites 468

Jones, G.A., S.F.H. Parker, J.G. Booth and D. Simkin
Domain structure of polycrystalline powders of $Ba_3Co_2Fe_{24}O_{41}$ 471

Juszczyk, S.
Transfer integrals and covalency parameters in chosen chromium spinels 473

Hankiewicz, J., Z. Pająk and J. Radomski
Low temperature NMR study of cadmium-substituted copper ferrite 475

Villeneuve, G., J.L. Pizarro, J.M. Dance, M.I. Arriortua, T. Rojo and R. Kuentzler
Magnetic properties of Co(II) compounds related to dittmarite $(HN_4)Mg(PO_4) \cdot H_2O$ 478

Szymczak, R., A. Szewczyk, M. Baran and V.V. Tsurkan
Domain structure in $CuCr_2Se_4$ single crystals 481

Eltink, S.J.E.A., H.J.M. Swagten, N.M.J. Stoffels and W.J.M. de Jonge
Correlation between electronic and magnetic properties in the IV–VI group diluted magnetic semiconductor SnMnTe 483

Krok-Kowalski, J. and J. Warczewski
Quantitative evaluation of the contribution of the double-exchange magnetic interaction in the total exchange integral in spinels $Cd_{1-x}Cu_xCr_2Se_4$ (x = 0.05,0.15,0.20,0.90,0.95) 485

Groń, T., H. Duda and J. Warczewski
Transport phenomena in the antiferromagnetic spinels $Zn_{1-x}Ga_2x/3Cr_2Se_4$ ($0.0 \leqslant x \leqslant 0.5$) 487

Papers presented at the Conference, but not published in these Proceedings

Fontcuberta, J., X. Obradors, M.A. Hadj Farhat, M. Pernet and J.C. Joubert
Mössbauer study of Fe–Y hexagonal ferrite CP3-01

Duda, H., T. Gron and J. Warczewski
Electrical properties of the ferromagnetic spinels $Cd_{1-x}Cu_xCr_2Se_4$ BP1-03

Swagten, H.J.M., C.E.P. Gerrits, W.J.M. de Jonge and A. Twardowski
Fe-based II–VI diluted magnetic semiconductors: a low temperature specific heat study BP1-08

Chapter 12. Magnetic separation and field computation

Gerber, R. and M.H. Watmough
Superconducting and conventional OGMS: comparative study 490

Hackhofer, W., J. Sammer and J. Gerhold
Inverse magnetic separation coil design 493

Borzov, V.L., T.Yu. Dmitrievskaya, A.N. Piskunov, V.K. Fedorov, P.A. Cheremnykh and V.N. Yaremenko
Prediction of separation process results in OGMS 495

Harel, O., W. Resnick and Y. Zimmels
Physical separation of particles in magnetized fluidized beds 498

Weigelt, K.
Solution of complex eigenvalue equations as used in the analytical solution of eddy-current problems of coupled regions 501

Paper presented at the Conference, but not published in these Proceedings

Fedorov, V.K.
Change of OGMS capacity and selectivity in pulp flow turbulization in separation zone CP3-13

Chapter 13. Magnetic measurements on superconductors

Reissner, M., W. Steiner, K. Remschnig and P. Rogl
Magnetic measurements on $(La, Sr)_2(Cu, Fe)O_{4-\delta}$ 506

Agostinelli, E., G. Balestrino, G. Fillon, D. Fiorani, R. Muzi, P. Paroli, J. Tejada and A.M. Testa
Magnetic measurements on Bi–Sr–Ca–Cu–O superconductor 509

Karim, R., H. How, R. Seed, C. Vittoria, G. Balestrino, A. Paoletti and P. Paroli
Microwave absorption of single-crystal high-T_c superconductors biased by DC current 511

Nozar, P., V. Sechovsky, L. Havela, J. Burianek and P. Stastny
Magnetization behavior of some high-T_c superconductors 513

Drzazga, Z., H. Broda, F. Seidler, P. Böhm, H. Geus and D. Wohlleben
Magnetic properties of $YBa_{1.8}M_{0.2}Cu_3O_{7-y}$(M = K, Na) superconductors 515

Papers presented at the Conference, but not published in these Proceedings

Lucchini, C., C. Giovannella, R. Messi, B. Lecuyer, L. Fruchter and M. Iannuzzi
AC susceptibility and non-linear dynamics in granular superconductors BP1-11

Suharan, S., D.H. Jones, C.E. Johnson, Q.A. Pankhurst and M.F. Thomas
Magnetic and conductivity studies of oxides related to high temperature superconductors BP1-13

Bolzoni, F.
H_{c2} measurement of $YBa_2Cu_3O_7$ by pulsed magnetic fields BP1-17

Vezzoli, G. and M. Shoga
Role of rare-earth in high-T_c $Y_1Ba_2Cu_3O_{7-\delta}$ PD-03

Chapter 14. Molecular magnetism and biomagnetism

Obradors, X., J. Tejada, J. Rodriguez, F. Pérez, M. Vallet, J. González-Calbet and M. Medarde
Low temperature magnetization of antiferromagnetic $YBa_2Cu_3O_6$ 517

Rojo, T., L. Lezama, R. Cortes, J.L. Mesa, M.I. Arriortua and G. Villeneuve
Ferromagnetically coupled dimer of Ni(II) with a singlet ground state: susceptibility and EPR study 519

Benelli, C., A. Caneschi, D. Gatteschi, O. Guillou and L. Pardi
Magnetic properties of tetranuclear complexes containing exchange coupled Ln_2Cu_2 (Ln = Gd, Dy) species 522

Lin, I.J. and J. Yotvat
Exposure of irrigation and drinking water to a magnetic field with controlled power and direction 525

Azanza, M.J.
Characterization of neuronal membrane K^+ and Ca^{2+} channels operated under steady magnetic fields exposure 527

Papers presented at the Conference, but not published in these Proceedings

Ovchinnikov, A.A. and V.N. Spector
Synthesis and magnetic properties of organic ferromagnets (*Invited*) A-03

Palacio, F., M.C. Moron, J. Garin, J. Reyes and J. Fontcuberta
Ferromagnetic interactions above room temperature in an organometallic polymer BP1-22

El-Sayed, M.E., S.T. Mona and A.S. Amira
Influence of constant magnetic field on the action potential parameters of the locust ventral nerve cord EP1-24

Chapter 15. Magnetic measurement techniques

Bohr, J.
Magnetic X-ray scattering: a new tool for magnetic structure investigations (*Invited*) 530

Clegg, W.W., N.A.E. Heyes, E.W. Hill and C.D. Wright
A highly versatile scanning laser microscope for magneto-optic observation of micromagnetic structure 535

Matteucci, G.
Direct observation of the magnetization distribution of grain oriented Fe–Si 3% using electron holography 537

Orth, T., U. Netzelmann, R. Kordecki and J. Pelzl
Imaging of magnetic materials by photothermally modulated ferromagnetic resonance 539

Rahf, L.
A precise and versatile calibrator for fluxmeters 541

Ripka, P.
Improved fluxgate for compasses and position sensors 543

Hartmann, U.
Magnetic microfield analysis by force microscopy 545

Joven, E., A. del Moral and J.I. Arnaudas
Magnetometer for anisotropy measurement using perpendicular magnetization 548

Hornauer, H., T.M. Atmono and K. Röll
A Kerr magnetometer using Faraday modulation technique 551

Albir, R.S. and A.J. Moses
Improved DC bridge method employed to measure local power loss in electrical steels and amorphous materials 553

Bozukov, L., A. Apostolov and T. Mydlarz
Apparatus for in situ measurements of influence of hydrogen absorption on the magnetic properties of intermetallic compounds 555

Fessant, A., J. Gieraltowski, J. Loaëc and H. Le Gall
Strip-line method for measuring the complex permeability of magnetic materials 557

Ling, P.C.Y. and A. Basak
Detection of magnetising inrush current using real time integration method 559

Paper presented at the Conference, but not published in these Proceedings

Schonenberger, C. and S.F. Alvarado
Magnetic force microscope using a polarizing interferometer DP2-01

Author index to volume 83 563

Subject index to volume 83 575

Materials index to volume 83 579